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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,777

12/14/2005

Stuart Michael Nevill

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EXAMINER

PHILLIPS, FORREST M

ART UNIT

PAPER NUMBER

2837

NOTIFICATION DATE

DELIVERY MODE

10/01/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/560,777

Applicant(s)

NEVILL, STUART MICHAEL

Examiner

Forrest M. Phillips

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,7,8,12,15,21,23-26 and 33-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8,12,15,21,23-26 and 33-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/14/05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the protective rim in between the block and the elongate members must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1- 2,7-8,12,15,24,26,33-37, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US4410768) in view of Guenther et al (US6097829) and Morrissey (US3841197).

With respect to claim 1 Nakamura discloses a diaphragm for a loudspeaker unit, the diaphragm (6 in figure 1) comprising a block of material having a first, sound radiating front face and a second rear face, wherein the block is stiffened by one or more elongate members of flexible material (see figure 4 and Col 4 lines 13-42).

Nakamura does not disclose wherein the elongate members are bound about the first and second faces nor specifically that they are stiffened by a stiffening composition.

Guenther disclose the use of elongate stiffening members which are flexible and sound in a stiffening composition in a speaker diaphragm (see abstract).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Guenther to have a stiffening composition and have the fibers on both faces of the diaphragm with the diaphragm of Nakamura to provide a greater degree of stiffness.

Nakamura in view of Guenther does not disclose expressly wherein the elongate members are wound about the two faces in order to stiffen the diaphragm, however such a means of stiffening a foam is well known as demonstrated by Morrissey, figure 4.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Morrissey to stiffen and reinforce foam by winding it with elongate members with the teachings of Nakamura and Guenther to use reinforcing fibers with a foam diaphragm.

The motivation for doing so would have been that winding elongate members about an item to be stiffened is a well known and understood simple means for reinforcing a material.

Morrissey is relied on solely to demonstrate a known method of stiffening foam by wrapping it in fibers.

With respect to claim 2 Nakamura further discloses (figures 2 and 3) wherein one or both faces of said block are convex and frusto conical.

With respect to claim 7 Nakamura further discloses wherein the block is made of a rigid plastics foam material and the foam is a foam selected from the group consisting of polymethyl methacrylamide foam and an expanded polystyrene foam (Column 4 lines 13-30).

With respect to claim 8 Nakamura as modified discloses the invention as claimed except wherein the foam as a density of more than 20 grams per liter and between 28 and 35 grams per liter. It would have been obvious to one of ordinary skill in the art to select such a foam density since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With respect to claim 12 Nakamura further discloses a diaphragm with a multiplicity of internal voids, see figure 11, and which is stiffened by the elongated members. At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Nakamura figure 11 to have internal voids with the foam diaphragm of Nakamura figure 6 to allow for a reduction in weight (Column 7 lines 65-69).

With respect to claim 15 Morrissey further discloses wherein the one or more elongate members is constituted by a member selected from the group consisting of a bundle of monofilaments of the selected materials (see figure 4 and Column 3 lines 50-60).

With respect to claim 24 Guenther discloses wherein the one or more elongate members are adhesively secured directly to the material of the diaphragm (see abstract).

With respect to claim 26 Nakamura further discloses wherein the diaphragm is bonded to a central tube (7 in figure 1) for carrying the voice coil of the loudspeaker drive unit.

With respect to claims 33 and 34 Examiner considers that Nakamura as modified discloses the invention as claimed, refer to rejection of claims 1, 7 and 12.

With respect to claim 35 Guenther discloses wherein the stiffening composition comprises a composition selected from the group (see abstract).

With respect to claim 36 Nakamura as modified discloses the invention as claimed except wherein the foam as a density of more than 20 grams per liter and

between 28 and 35 grams per liter. It would have been obvious to one of ordinary skill in the art to select such a foam density since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With respect to claim 37 Morrissey further discloses wherein the one or more elongate members is constituted by a member selected from the group consisting of a bundle of monofilaments of the selected materials (see figure 4 and Column 3 lines 50-60).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nkamura Guenther and Morrissey as applied to claim 1 above, and further in view of Goossens (US4517416).

With respect to claim 23 Nakamura as modified discloses the invention as claimed except wherein a protective rim is provided at the periphery of the block between the one or more elongate members and the material of the block.

Goossens discloses the use of a protective rim (30 in figure 3) between elements of the diaphragm.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Goossens to provide a protective rim with the diaphragm of Nakamura as modified to prolong the life of the diaphragm.

Claims 38-40, 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura Guenther, Morrissey and James (US20020146145).

With respect to claim 38 Nakamura discloses a diaphragm for a loudspeaker unit, the diaphragm (6 in figure 1) comprising a block of material having a first, sound radiating front face and a second rear face, wherein the block is stiffened by one or more elongate members of flexible material (see figure 4 and Col 4 lines 13-42).

Nakamura does not disclose wherein the elongate members are bound about the first and second faces nor specifically that they are stiffened by a stiffening composition, or wherein the first sound radiating face is convex.

Guenther disclose the use of elongate stiffening members which are flexible and sound in a stiffening composition in a speaker diaphragm (see abstract).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Guenther to have a stiffening composition and have the fibers on both faces of the diaphragm with the diaphragm of Nakamura to provide a greater degree of stiffness.

Nakamura in view of Guenther does not disclose expressly wherein the elongate members are wound about the two faces in order to stiffen the diaphragm, however such a means of stiffening a foam is well known as demonstrated by Morrissey, figure 4.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Morrissey to stiffen and reinforce foam by winding it with elongate members with the teachings of Nakamura and Guenther to use reinforcing fibers with a foam diaphragm.

The motivation for doing so would have been that winding elongate members about an item to be stiffened is a well known and understood simple means for reinforcing a material.

Morrissey is relied on solely to demonstrate a known method of stiffening foam by wrapping it in fibers.

Nakamura in view of Guenther and Morrissey does not disclose wherein the first sound radiating face of the diaphragm is convex.

James discloses (figure 2) a diaphragm with convex first and second faces.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of James to have both first and second faces of the diaphragm convex with the diaphragm of Nakamura to resist bending and distortion (paragraph 21).

With respect to claim 39 Nakamura further discloses a diaphragm with a multiplicity of internal voids, see figure 11, and which is stiffened by the elongated members. At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Nakamura figure 11 to have internal voids with the foam diaphragm of Nakamura figure 6 to allow for a reduction in weight (Column 7 lines 65-69).

With respect to claim 40 Nakamura further discloses wherein the diaphragm is bonded to a central tube (7 in figure 1) for carrying the voice coil of the loudspeaker drive unit.

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With respect to claim 21 Nakamura as modified discloses the invention as claimed except wherein the body of material is wound about by a number of turns selected from the group of between 100 and 500 turns and between 200 and 400 turns. It would have been obvious to one of ordinary skill in the art to select such a number of turns since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With respect to claim 25 Nakamura as modified further discloses wherein the said first face of the block of material and said one or more flexible membranes are arranged to act directly on the ambient air to radiate sound. In as much as there is no structure disclosed to prevent the speaker from acting on the ambient air it is necessarily the case that they do.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Guenther Morrissey and James as applied to claim 38 above, and further in view of Goossens.

With respect to claim 41 Nakamura as modified discloses the invention as claimed except wherein a protective rim is provided at the periphery of the block between the one or more elongate members and the material of the block.

Goossens discloses the use of a protective rim (30 in figure 3) between elements of the diaphragm.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Goosens to provide a protective rim with the diaphragm of Nakamura as modified to prolong the life of the diaphragm.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to form 892.

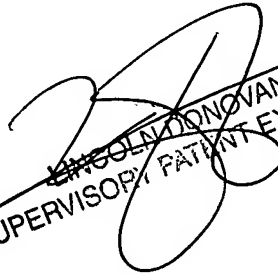
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Forrest M. Phillips whose telephone number is 5712729020. The examiner can normally be reached on Monday through Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 5712721988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FP


LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER